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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,430	10/14/2003	Eric L. Ahlvin	100202869-1	7283

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HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
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HSIEH, SHIH WEN

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8/1

<b>Office Action Summary</b>	<b>Application No.</b> 10/686,430	<b>Applicant(s)</b> AHLVIN ET AL.	
	<b>Examiner</b> Shih-wen Hsieh	<b>Art Unit</b> 2861	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,11,12,21-23 and 26-32 is/are pending in the application.
- 4a) Of the above claim(s) 24 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,11,12,21-23 and 26-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10-14-03 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Amendment***

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1, 2, 11, 12, 21-23 and 26-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misuda et al. (EP 0 858 905 A1, from IDS dated Oct. 14, 2003) in view of Kenichi (JP 02092642, from IDS dated March 21, 2005).

In regard to:

Claim 1:

Misuda et al. teach:

In combination, (1) a thermal printhead and (2) an inkjet printhead, both mounted in an inkjet printer, said inkjet printhead configured for printing inkjet ink to form images on a sheet of print media, said print media including a sealable porous topcoat on an ink-receiving microporous layer, said thermal printhead adapted to seal said sealable porous topcoat by providing a source of heat to said sealable porous surface coat following said printing of images, refer to page 3, lines 10-12, and page 5, lines 25-27 for the top porous layer and the underneath ink receiving layer respectively, for ink jet print head, please refer to page 6, lines 1-6. Misuda et al. teach the image on the medium will be heated **without** further teaching what is the heating device, e.g, page 6, lines 7-12. To this issue, Kenichi teaches a thermal head (18a or 18b) is mounted along with an ink jet head (16) to heat the image being produced on a printing medium (10), refer to the English constitution.

Therefore it would have been obvious an obvious matter to adapt Kenichi's fashion to heat the image by the thermal head already been put on the medium, this kind of arrangement is able to provide heat to the image right away in the first place, beside, since the thermal head is mounted along with the ink head, and therefore occupying less space as compared with a heating device being disposed at an far end of a convey belt, which is also as a device for conveying a print medium passing underneath an ink head for receiving ink droplets to form an image, and later being heated by the heating device.

For the word "sealable" in this claim, since the porous layer after heat becomes nonporous transparency film and encapsulates the image on the ink receiving layer underneath, and has a weatherability characteristics, and is, therefore, considered as sealable.

Claim 2:

The combination of Claim 1 wherein said inkjet printhead is supported and moved on a carriage across a scan axis, along a print zone, perpendicular to a direction of print media advance and wherein said thermal printhead is positioned with said inkjet printhead on said carriage to seal said sealable porous surface coat following printing of said image.

Rejection:

The device of Kenichi in the device of Misuda et al. as modified in view of Kenichi teaches this feature, refer to the drawing in the English abstract.

Claim 11:

In combination, (1) a thermal printhead, (2) an inkjet printhead, both mounted in an inkjet printer, said inkjet printhead configured for printing inkjet ink to form images on a sheet of print media, and (3) said print media including a sealable porous surface coat on an ink-receiving microporous layer, said thermal printhead adapted to seal said sealable porous surface coat by providing a source of heat to said sealable porous surface coat following said printing of images.

Rejection:

This claim is a combination of claims 1 and 2, and is rejected on the basis as set forth for claims 1 and 2 discussed above.

Claim 12:

The combination of Claim 11 wherein said inkjet printhead is supported and moved on a carriage across a scan axis, along a print zone, perpendicular to a direction of print media advance and wherein said thermal printhead is positioned with said inkjet printhead on said carriage to seal said sealable porous surface coat following printing of said image.

Rejection:

This claim is rejected on the basis as set forth for claim 2 discussed above.

Claim 21:

Misuda et al. further teach:

wherein said at least one ink-receiving layer comprises at least one pigment and at least one binder, refer to page 5, lines 25-45.

Claim 22:

Misuda et al. further teach:

wherein said at least one pigment is selected from the group consisting of highly porous silica, alumina, **hydrates of alumina**, titania, zirconia, base metal oxides, carbonates, glass beads, and hard ball, wherein said at least one binder is selected from the group consisting of gelatin, polyvinyl pyrrolidone, water-soluble cellulose derivatives, **polyvinyl alcohol and its derivatives**, polyacrylamide, polyacrylic acid, water-soluble acrylic acid co-polymers, and wherein said at least one ink-receiving layer

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has a porosity within a range of 25 to 28 cm<sup>3</sup>/m<sup>2</sup>, refer to page 5, lines 28-45, since this claim is a Makush type, therefore, the bolded-face materials above are the materials taught by Misuda et al.

The device of Misuda et al. as modified in view of Kenichi DIFFERS from claim 22 in that it does not teach:

wherein said at least one ink-receiving layer has a porosity within a range of 25 to 28 cm<sup>3</sup>/m<sup>2</sup>.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to select a type of porous material for the material of the ink-receiving layer, and its porosity is within a range, such as the range recited in this claim, since it has been held that where a general conditions of a claim are disclosed in the prior art such as in the Misuda et al.'s reference, discovering the optimum or workable ranges such as a porosity within a range of 25 to 28 cm<sup>3</sup>/m<sup>2</sup>, involves only routine skill in the art, refer to MPEP 2144.05, II A.

Claim 23:

Misuda et al. further teach:

wherein said sealable porous topcoat comprises either a **binder** selected from the group consisting of gelatin, polyvinyl pyrrolidone, water-soluble cellulose derivatives, **polyvinyl alcohol** and its derivatives, polyacrylamide, polyacrylic acid, water-soluble acrylic acid co-polymers, or a pigment comprising a film-forming latex, and wherein said topcoat has a pore size in a range of about 4 to 15 nm, refer to page 4, lines 21-29,

wherein Misuda et al. teach the bolded-face materials indicated above. For the pore size, please refer to the rejection to claim 22 above.

Claim 26:

In combination, (1) a thermal printhead, (2) an inkjet printhead, both mounted in an inkjet printer, said inkjet printhead configured for printing inkjet ink to form images on a sheet of print media, and (3) said print media including a sealable porous surface coat on an ink-receiving microporous layer, said thermal printhead adapted to seal said sealable porous surface coat by providing a source of heat to said sealable porous surface coat following said printing of images, wherein said at least one ink-receiving layer comprises at least one pigment and at least one binder and wherein said at least one pigment is selected from the group consisting of highly porous silica, alumina, hydrates of alumina, titania, zirconia, base metal oxides, carbonates, glass beads, and hard ball, wherein said at least one binder is selected from the group consisting of gelatin, polyvinyl pyrrolidone, water-soluble cellulose derivatives, polyvinyl alcohol and its derivatives, polyacrylamide, polyacrylic acid, water-soluble acrylic acid co-polymers, and wherein said at least one ink receiving layer has a porosity within a range of 25 to  $28 \text{ cm}^3/\text{m}^2$ .

This claim is rejected on the basis as set forth for claims 11, 21 and 22 discussed above. For the porosity in a range of 25 to  $28 \text{ cm}^3/\text{m}^2$ , there is still a discussion of a range problem. Nevertheless, Tomioka et al. (EP 1 016 543 A1, from IDS dated Oct. 14, 2003) teach a printing medium has the same structure as that in Misuda et al.'s invention. Tomioka et al.'s ink-receiving layer teach a pore volume (corresponding to



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porosity) for the ink receiving layer is ranged from 0.1 to 1.0 cm<sup>3</sup>/g (refer to page 5, [0029]). Tomioka et al. further teach in their page 8 [0058] the liquid dispersion amount for the same is from 0.5 to 60 g/cm<sup>2</sup>, therefore, the product of cm<sup>3</sup>/g and g/cm<sup>2</sup> yields cm<sup>3</sup>/cm<sup>2</sup>. Examiner will not further discuss what are the results of such multiplication, since it is an arithmetic problem in the first place, and secondly, even the products will be different with those in this claim, however, per MPEP 2144.05 II A, it is still involved routine skill in the art. No motivation is being given, since it is a range or numerals are concerned, and naturally, the data in the range or numerals will be different from application to application.

Claim 27:

The combination of Claim 26 wherein said inkjet printhead is supported and moved on a carriage across a scan axis, along a print zone, perpendicular to a direction of print media advance and wherein said thermal printhead is positioned with said inkjet printhead on said carriage to seal said sealable porous surface coat following printing of said image.

Rejection:

This claim is rejected on the basis as set forth for claim 2 discussed above.

Claim 28:

The combination of Claim 26 wherein said sealable porous topcoat comprises either a binder selected from the group consisting of gelatin, polyvinyl pyrrolidone, water-soluble cellulose derivatives, polyvinyl alcohol and its derivatives, polyacrylamide,

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polyacrylic acid, water-soluble acrylic acid co-polymers, or a pigment comprising a film-forming latex, and wherein said topcoat has a pore size in a range of about 4 to 15 nm.

Rejection:

This claim is rejected on the basis as set forth for claim 23 discussed above.

Claim 29:

In combination, (1) a thermal printhead, (2) an inkjet printhead, both mounted in an inkjet printer, said inkjet printhead configured for printing inkjet ink to form images on a sheet of print media, and (3) said print media including a sealable porous surface coat on an ink-receiving microporous layer, said thermal printhead adapted to seal said sealable porous surface coat by providing a source of heat to said sealable porous surface coat following said printing of images, wherein said sealable porous topcoat comprises either a binder selected from the group consisting of gelatin, polyvinyl pyrrolidone, water-soluble cellulose derivatives, polyvinyl alcohol and its derivatives, polyacrylamide, polyacrylic acid, water-soluble acrylic acid co-polymers, or a pigment comprising a film-forming latex, and wherein said topcoat has a pore size in a range of about 4 to 15 nm.

Rejection:

This claim is rejected on the basis as set forth for claims 11 and 23 discussed above. As to the pore size in this claim, Misuda et al. teach a size range in their page 4, lines 44-55 (Misuda et al. used the term particle diameter, a pore is a particle, and the particle diameter is the pore size). Although the size ranges taught by Misuda et al.

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differs from those recite in this claim, however, its rejected basis is still as set forth for claim 26 discussed above.

Claim 30:

The combination of Claim 26 wherein said inkjet printhead is supported and moved on a carriage across a scan axis, along a print zone, perpendicular to a direction of print media advance and wherein said thermal printhead is positioned with said inkjet printhead on said carriage to seal said sealable porous surface coat following printing of said image.

Rejection:

This claim is rejected on the basis as set forth for claim 2 discussed above.

Claim 31:

The combination of Claim 29 wherein said at least one ink-receiving layer comprises at least one pigment and at least one binder.

Rejection:

This claim is rejected on the basis as set forth for claim 21 discussed above.

Claim 32:

The combination of Claim 31 wherein said at least one pigment is selected from the group consisting of highly porous silica, alumina, hydrates of alumina, titania, zirconia, base metal oxides, carbonates, glass beads, and hard ball, wherein said at least one binder is selected from the group consisting of gelatin, polyvinyl pyrrolidone, water-soluble cellulose derivatives, polyvinyl alcohol and its derivatives, polyacrylamide,

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polyacrylic acid, water-soluble acrylic acid co-polymers, and wherein said at least one ink-receiving layer has a porosity within a range of 25 to 25 cm<sup>3</sup>/m<sup>2</sup>

Rejection:


This claim is rejected on the basis as set forth for claim 22 discussed above.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SHIH-WEN HSIEH  
PRIMARY EXAMINER

  
Shih-wen Hsieh  
Primary Examiner  
Art Unit 2861

SWH

  
March, 14, 2006